IPS-1

Write an algorithm / pseudo-code, Flow Chart and subsequent Python program to compute the electricity charges for the consumer as per the following slabs.

		Slab Rate	
From Unit	**To Unit**	**Rate (Rs.)**	**Max.Unit**
1	100	0	100
1	100	0	200
101	200	1.5	200
1	100	0	500
101	200	2	500
201	500	3	500
1	100	0	9999999
101	200	3.5	9999999
201	500	4.6	9999999
501	Above	6.6	9999999

Input: First Line: Number of units consumed.
Output: Total amount to be paid.
For Example if the number units consumed is 550, then bill amount is as follows

First 100 units amount to be paid = 100 X 0.0 = 0.00

next 100 units amount to be paid = 100 X 3.5 = 350.00

next 300 units amount to be paid = 300 X 4.6 = 1380.00

next 50 units amount to be paid = 50 X 6.6 = 330.00

Total amount to be paid for 550 units is = 2060.00

tc-1(test case-1)
50
0
tc-2(test case-2)
175
112.50
tc-3(test case-3)
230
290.00
tc-4(test case-4)
550
2060.00

tc-5(test case-5)
-1
Invalid Input

Code:

```
num_units = float(input())
if(num_units<0):
   print("Invalid Input")
   exit(0)
else:
   if(num_units>=0 and num_units <=100):
      bill_amount = 0;
      print(format(bill_amount,'.2f'))
   elif(num_units>100 and num_units <=200):
      bill_amount = (num_units-100)*1.5;
      print(format(bill_amount,'.2f'))
   elif(num_units>200 and num_units <=500):
      bill_amount = (num_units-200)*3+100*2;
      print(format(bill_amount,'.2f'))
   else:
      bill_amount = (num_units-500)*6.6+100*3.5+300*4.6;
      print(format(bill_amount,'.2f'))
```

IPS-2

VIT Examination cell like to facilitate to their students to find out their category by supplying the number of subjects and marks obtained in those respective subjects. Write a python program and subsequent pseudocode/flowchart to determine the category of the student.
The category of student is decided with the following criteria.
CGPA = average marks/10;
The details criteria are as follows:
<=9 CGPA <=10 - outstanding
<=8 CGPA < 9 - excellent
<=7 CGPA < 8 - good
<=6 CGPA < 7 - average
<=5 CGPA < 6 - better
CGPA < 5 - poor

For Ex : if number of subjects=3, marks = 100,90,80 category is outstanding.
Note: Marks should not be lessthan 0 and graeterthan 100

tc-1(test case-1)
3
90
100
80
Outstanding

tc-2(test case-2)
3
50
65
82
Average
tc-3(test case-3)
3
-1
Invalid Input

Code:

```
count = 0
total = 0
n = int(input())
while (count<n):
    mark = int(input())
    if(mark<0 or mark >100):
      print("Invaild Input")
      exit(0)
    else:
      total = total + mark
      count = count + 1
CGPA = int(total/(n*10))
if(CGPA == 9):
   print("Outstanding")
elif((CGPA >= 8) and (CGPA < 9)):
   print("Excellent")
elif((CGPA >= 7) and (CGPA < 8)):
   print("Good")
elif((CGPA >= 6) and (CGPA < 7)):
   print("Average")
elif((CGPA >= 5) and (CGPA < 6)):
   print("Need to Improve")
else:
   print("Very Poor")
```